



Cape Cod

National Seashore  
Massachusetts



# OFEE Federal and Environmental Symposium, West Coast

June 18, 2008



Cape Cod

National Seashore  
Massachusetts



# Cape Cod National Seashore

## Renewable Fuels and the Community



# Cape Cod National Seashore Location

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# **Cape Cod National Seashore Biofuels Experience**



## Cape Cod

National Seashore  
Massachusetts

# Green and Sustainable Cape Cod National Seashore

- **Green & Sustainable Supplies since 1998**
- **Recycling in the Park since 1990**
- **Green Building Products since 1996**
- **Green Auto & Equipment Shop since 2000**
- **Green Hybrid Cars since 2001**
- **Water Saving Initiatives since 1997**
- **Energy Efficiency since 2000**
- **Renewable Energy planned for 2008**
- **Environmental Management System since 2004**
- **Waste & Trash Management since 1998**
- **The Flex & Outer Cape Transportation System**
- **Alternative Fuels and the Outer Cape Community**



# Cape Cod National Seashore

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## Biodiesel Equipment and Vehicles



1. 1953 M52A2 5 Ton Dump Truck LD465 Multifuel engine
2. 1958 M52A2 5 Ton Dump Truck LD465 Multifuel engine
3. 1955 M52A2 5 Ton Tanker Cummins Diesel
4. 1975 Michigan 175B Loader Detroit Diesel
5. 1980 John Deere 430 & 330 tractors Yanmar Diesel
6. 1980 Onan 6 KW Generator Onan Air Cooled Diesel
7. 1984 Chevy K 3500 6.2 Chevy Diesel
8. 1984 Case 1394 Tractor Case Diesel
9. 1985 Ford 555B Backhoe Ford Leyman Diesel
10. 1985 Chevy G30 Van 6.2 Chevy Diesel
11. 1985 John Deere 2555 Tractor John Deere Diesel
12. 1985 Badger Chipper Cummins Diesel





# Cape Cod National Seashore

## Biodiesel Equipment and Vehicles



13.1988 IH Bucket Truck

14.1989 Case Fork Lift

15.1990 Ford F800

16.1992 Ford F700

17.1993 Dodge W250

18.1996 Ford F250

19.2000 Cat 914G Loader

20.2002 New Holland Skid Steer

21.2004 Ford F450

22.2006 Chevy G30 Van

23.2006 14 Gillig Buses

Navistar Diesel

Case Diesel

Ford Diesel

Ford Diesel

Cummins Diesel

Power Stroke Diesel

Cat Diesel

New Holland Diesel

Power Stroke Diesel

Duramax Diesel

Cummins Diesel





## Cape Cod

National Seashore  
Massachusetts



**1953 M52A2 5 Ton Dump Truck**  
**LD465 Multifuel engine**



**1975 Michigan 175B Loader**  
**Detroit Diesel**

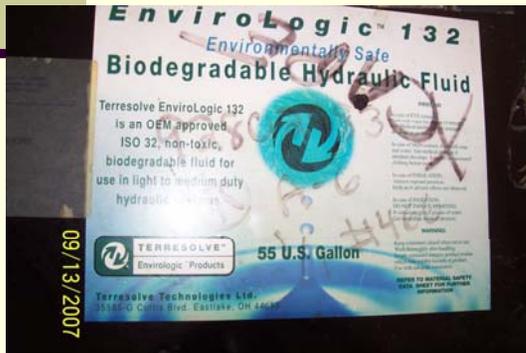


# Cape Cod National Seashore Alternative Oils and Lubricants

## Biodegradable/Non-Toxic Products



- Hydraulic Fluids
- Gear Oils
- Bar and Chain
- General Purpose
- Two Cycle Engine Oil
- Dust Suppressant
- Universal Tractor Fluid
- Grease
- Shock Absorber
- BioFlush
- Diesel Fuel
- Asphalt Release Agent
- Streamer Fluids



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# **Cape Cod Renewable Fuels Partnership**

# What is the Partnership?

- The Cape Cod Renewable Fuels Partnership (Partnership) was formed to advance the use of biofuels on Cape Cod.
- The group was formed at the request of Congressman Delahunt who has a vision of a “renewable energy highway” beginning on Cape Cod.



# Who are the Partners?

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- Local legislators including Congressman Delahunt and State Senator O'Leary
- Industry representatives
- Massachusetts Executive Office of Energy and the Environment
- Barnstable County
- Cape Towns and Economic Development Leaders
- Cape and Islands Renewable Energy Collaborative
- Members of the public

# Cape Cod National Seashore

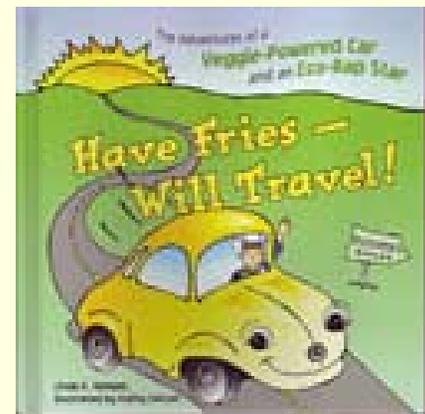
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- Principal partner in the Partnership.
- First on the Cape to use biodiesel.
  - Leading by example – the Seashore experience has been useful to other agencies and towns in the decision to use biodiesel.
  - The Seashore has an open offer to assist towns that would like to try biofuels.
- Mandated that ATPPL funded transit vehicles operate on biodiesel.

# Partnership Mission

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*The Renewable Fuels Partnership is committed to expanding the use of renewable fuels by providing a forum to educate potential users and support opportunities for funding and collaboration. These activities will be pursued to make renewable fuels a viable option on Cape Cod.*



# What is our current goal?

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- Obtaining the support of the Cape Towns for the advancement of renewable fuels by signing the

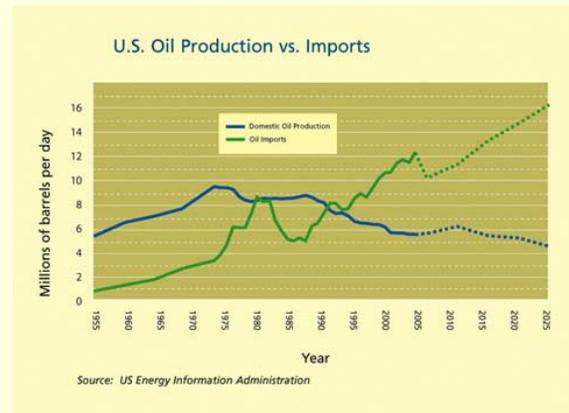


## **Cape Cod Renewable Fuels Declaration of Support.**

# What is the Declaration of Support?

A document pledging to develop and support an alliance of towns, municipal (state, federal and local) agencies, and private entities to;

- Replace vehicles where appropriate with renewable fuel capable vehicles.
- Use biodiesel in existing diesel fleets where appropriate and;
- Maximize economic benefits through the development of cooperative efforts.



# Why we need the Towns' Support

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- Creating a coalition of the 15 towns and local agencies will help;
  - Develop a critical mass of biofuel capable vehicles to attract private investment in infrastructure.
  - Provide evidence of local support for state and federal legislators seeking funds for incentives.
  - Create opportunities for collaborative purchases of fuel, vehicles, and fueling facilities.



# Who has Signed?

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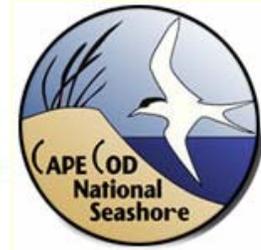
Towns and organizations  
that have signed the CCRFP

Declaration of Support:

- **Eastham**
- **Wellfleet**
- **Harwich**
- **Truro**
- **Provincetown**
- **Orleans**
- **Bourne**
- **Cape Cod  
National Seashore**

# What else has the Partnership been up to?

- Developing a Strategic Implementation Plan Outline.
- Advocating Biofuels through many forums.
  - Biodiesel now available on County procurement list.
  - Looking to establish a combined procurement with the State – more volume = lower prices.
- Participating with the State Legislature's Advanced Biofuels Task Force.



# What else has the Partnership been up to?

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- Applying for Funding to;
  - Develop the Strategic Implementation Plan
  - Provide incentives for infrastructure development, fuel and vehicle subsidies.
  - Create two “pilot” stations on the Mid and Outer Cape areas.
- Holding informational public forums.
  - September 14<sup>th</sup> Biodiesel forum was geared to towns and attracted 70 attendees.
  - Ethanol Forum was held April 8<sup>th</sup> – 50 attendees.
  - Planning a biofuels economic roundtable

**Energy Efficiency & Renewable Energy Program**

**Renewable Energy**

# CC Strategic Implementation Plan

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## Plan Highlights

- Identify Potential Markets
- Identify Infrastructure Needs
- Develop Funding Programs
- Develop an Education and Outreach Program
- Investigate the viability of Regional Resources



# Potential Regional Biofuel Opportunities

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Upcoming Economic Roundtable to promote local opportunities:

- **Cranberries**

- Oil is currently being extracted and sold for its Omega-3 value. Cranberry seed has 40% oil content.

- **Fish**

- Unregulated fish with little value for human consumption and heavy oil content can be used along with liver oil.

# Potential Regional Biofuel Opportunities

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## ■ Micro algae

- Algae farming is recognized by the USDA as an agricultural industry eligible for funding.
- The biodiesel yield per unit area of algae is estimated to be 5,000 to 20,000 gallons/acre/year compared to 50 gallons/acre/year for soybeans. (*A look back at the U.S. Department of Energy's Aquatic Species Program: Biodiesel from Algae*, United States Department of Energy, July 1998)
- Cape Cod already has algae farms to support shell fishing and experts at the Woods Hole Oceanographic Institute.
- Algae can also be used to produce ethanol.

# Documents and Meetings

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**Partnership documents are posted at:**

<http://www.cirenew.info/CCRFP.htm> including the Declaration of Support and the Draft Strategic Plan Outline.

Partnership Meetings are generally at 10am the 4<sup>th</sup> Friday at the Cape Cod National Seashore Salt Pond Visitors Center in Eastham.



# Biodiesel Muscle Car



## 1965 Chevy Impala

- 6.5L biodiesel engine
- 800 Horsepower
- 1200 ft-lb of torque
- 0-60 in 3 seconds
- 25 MPG



*The biodiesel Impala had no problem beating a 2007 Lamborghini Gallardo*

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# **E.O. 13423 and its Implications On Cape Cod**

# E.O. 13423 and its Implications On Cape Cod

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- Executive Order 13423 "Strengthening Federal Environmental, Energy, and Transportation Management", signed by President Bush on January 24, 2007.
- Many new and long-term Cape projects that will be impacted by this E.O.
- How will Cape Cod comply and succeed



# E.O. 13423 and its Implications On Cape Cod

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- **Section 1. Policy.** It is the policy of the United States that Federal agencies conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions *in an environmentally, economically and fiscally sound, integrated, continuously improving, efficient, and sustainable manner.*

# E.O. 13423 and its Implications On Cape Cod

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The Cape Cod National Seashore is a major generator of traffic on Cape Cod with 5 million visitors each year.

Achieving the goals of the Executive Order *in an environmentally, economically and fiscally sound, integrated, continuously improving, efficient, and sustainable manner* requires looking outside the Park and coordinating with the towns and local agencies in Partnerships.

This has been done largely through the ATPPL program and coordination with the regional planning agency, regional transit agency, and outreach to the communities and private industry.



# E.O. 13423 Planning On Cape Cod

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The USDOT Volpe National Transportation Systems Service Center, the Cape Cod Commission and the Cape Cod National Seashore are partnering in the development of five studies which have E.O. 13423 implications.

These projects have been developed through partnerships and integrated into the regional and local planning through the Federal Metropolitan Planning Organization (MPO) processes.



# Some Planning Partners



# E.O. 13423 Planning On Cape Cod

1. **Satellite Maintenance Study** - Define needs and evaluate alternative satellite bus maintenance/storage sites on the Outer Cape.
2. **Outer Cape Parking Study** - This study will explore the need for park and ride and additional park and town beach parking and develop a recommended parking development and maintenance program.
3. **Integrated Bicycle Plan for Cape Cod** - This study will develop a comprehensive vision for an integrated regional system of bicycle trails and facilities including connections to transit.
4. **Intelligent Transportation Implementation Plan** - This study would identify effective locations and a system compatible with the defined architecture for ITS elements related to the National Seashore.
5. **Expansion of Flex Transit Service** - This study will look at providing Flex service to the Chatham area and develop remote parking and a shuttle system plan for the Monomoy Wildlife Refuge.



# Significant E.O. 13423 Related Programs For Cape Cod – Long Term

## ■ **Alternative Transportation**

- Clean vehicle replacement program
- Construct Satellite Maintenance Facility
- Coordination of private sector public transportation
- Development of a “Smart Card” program
- Expansion of Flex Route with physical and vehicle support elements
- Construction of Local Transportation Centers



*Cape Cod's Regional Government*

### **Barnstable County Supports Car-free Alternatives!**

Annual "Smart Transportation Week" in June ■ Support for the Cape Cod Transit Task Force  
Employee Carpool Parking and Emergency Ride Home Programs ■ Support for the "Smart Guide" and "The Flex" Bus Service

[www.gocapecod.org](http://www.gocapecod.org)



# Significant E.O. 13423 Related Programs For Cape Cod – Long Term

## ■ Parking Improvement Program

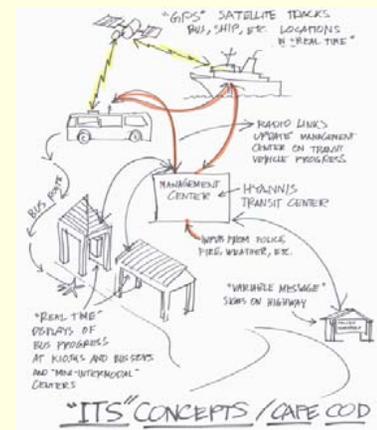
- Centralized parking and shuttles to avoid environmentally sensitive areas and reduce vehicle miles traveled.

## ■ Bicycle Network Development

- Construction of a Provincetown Bicycle Extension and other connections with the communities.
- Provision of amenities and services to coordinate bicycle, transit and bicycle “park and bike” facilities.

## ■ Intelligent Transportation System Implementation

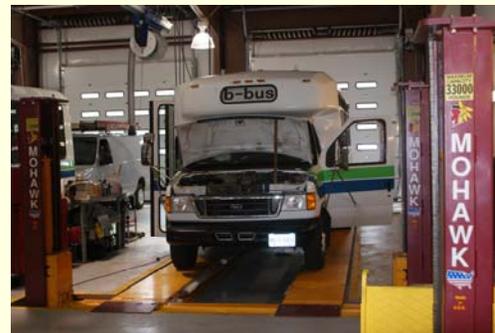
- Public Transportation Partner Program
- Highway monitoring and communication systems
- Parking monitoring and communications systems
- Transportation information systems



# Overall Approach To Meeting Requirements Of E.O. 13423 & Epack Sec. 701

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- Implement low-cost options to immediately reduce petroleum consumption
- Distribute existing vehicle inventory to maximize alternative fuel use
- Expand alternative fueling infrastructure
  - Cape Cod Renewable Fuels Partnership
  - NPS, CCRTA, County, Town, not-for-profit and Private Sector Fleets



# E.O. 13423, SEC. 2(G):

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- *E.O. 13423, sec. 2(g): In implementing the policy set forth in section 1 of this order, the head of each agency shall: (g) ensure that, if the agency operates a fleet of at least 20 motor vehicles, the agency, relative to agency baselines for fiscal year 2005, (i) reduces the fleet's total consumption of petroleum products by 2 percent annually through the end of fiscal year 2015, and (ii) increases the total fuel consumption that is non-petroleum based by 10 percent annually.*

# E.O. 13423, SEC. 2(G):

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To achieve the petroleum reduction goal of Section 2(g) of the E.O., the Volpe Center project team shall strive to:

- Reduce vehicle miles traveled through such methods as trip consolidation practices, and the use of mass transportation/agency shuttles (e.g., beach shuttles).
- Increase overall fleet fuel economy through acquisition of higher fuel economy vehicles (e.g., hybrid-electric vehicles, and other advanced technology vehicles).
- Continue to integrate renewable fuels into fleet vehicles and promote their use by others.



# E.O. 13423, SEC. 2(G):

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To achieve the petroleum reduction goal of Section 2(g) of the E.O., the Volpe Center project team shall strive to:

- “Right-size” its fleet, employing the most fuel-efficient vehicle for the required task and having the appropriate number of vehicles relative to need.
- Employ efficiency strategies such as synthetic oil, and other technologies.
- Continue to work with the surrounding communities to reduce the overall “Carbon Footprint” for the area.



# Partnership Contact Information

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